ATTORNEY GENERAL
DEPARTMENT OF JUSTICE

33 CAPITOL STREET
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KELLY A. AYOTTE
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December 30, 2005

Section 5 Submission

Chief, Voting Section
Civil Rights Division
Room 7254 – NWB
Department of Justice
950 Pennsylvania Ave., NW
Washington, DC 20006

Re: Submission Under Section 5 of the Voting Rights Act for:

A ballot marking device to assist voters with disabilities in voting.

Dear Voting Section Chief:

Pursuant to 42 U.S.C. § 1973 (c), the State of New Hampshire, through the Office of the New Hampshire Attorney General, hereby submits a ballot marking device to assist voters with disabilities in voting to comply with section 301 of the Help America Vote Act for preclearance.

SUBMISSION:

In accordance with 28 C.F.R. § 51.27, the submission is as follows:

a) The user manual for a telephone based fax-back ballot marking system to be used in each polling place in New Hampshire to assist voters with disabilities in voting. This system will place a telephone, suited for use by persons with disabilities, and a fax machine in an accessible voting booth at every polling place in New Hampshire. A voter choosing to use the system will be assisted by an election worker in placing a call into the central computer system which will verify that the call is authorized through the caller ID and a pin number entered by the poll workers. The voter is then left alone in the booth to vote. The central computer will read the voter his or her ballot choices.

Using the telephone keypad the voter will make selections. The choices will be read back to the voter in a verification process which will enable the voter to change his or her vote if an error has occurred or if the voter changes his or her mind. The voter will be able to use the telephone keypad to navigate, *i.e.* return to a particular race/question or skip forward. When the voter either chooses to stop making choices or has completed all choices, the voter will end the process using the keypad. Shortly thereafter a plain paper marked ballot, marked according to the voter's choices, will be faxed by the central computer to the fax machine in the voting booth. Voters, whose disabilities do not prevent doing so, will be able to view that marked ballot, verify that it reflects their choices, and will carry it to the ballot box where it will be deposited by the voter. Voter's whose disability is of a character that prevents him or her from carrying the ballot to the ballot box without assistance, will receive assistance from a person of their choosing or an election official. However, the voter may not be assisted by a person who is the voter's employer or union official. Prior to the voting process a privacy folder will be set up on the fax machine so that the marked ballot will feed into the folder and will not be visible. When the voter has completed voting and signals the election worker, the worker will assist the voter in carrying the ballot inside the privacy folder to the ballot box where it will be deposited, in a manner that preserves the secrecy of how the ballot is marked, with the assistance of the moderator.

b) The practice being changed predates the duty to preclear. Prior to the implementation of the telephone – fax-back ballot marking system voters with disabilities were, and will continue to be, entitled to vote using a standard paper ballot with the assistance of a person of their choosing, except their employer or union official. The practice of having privacy folders for ballots that allow the voter to have assistance in carrying the ballot to the ballot box is an existing practice which is not a new change. Privacy folders will now be available at all polling places. Previously small towns that hand count ballots used plain paper ballots that are folded in a manner that function in the same manner and with the same effect as a privacy folder.

c) The change being made does not affect past practice, it only adds a new practice. This system complies with Section 301 of the Help America Vote Act. The system provides a voter with disabilities, such as blindness or a palsy, with the opportunity to privately and independently create a marked paper ballot. The system permits the voter to privately and independently verify the votes selected by the voter before the ballot is cast and counted. The system provides the voter with the ability to change a vote after it is initially entered into the system and before the marked ballot is printed by the fax machine.

Voters using the phone fax-back ballot marking system will have the same right all voters have to spoil or void a ballot and to have up to three additional opportunities to mark a new ballot. The system will prohibit over voting as only the permissible number of choices for a given race/question may be selected. The audio playback verification system will alert the voter if they are choosing to undervote. The change is to provide this electronic device to assist most voters with disabilities with marking a ballot in a manner that is private and independent.

d) This submission is made by: Senior Assistant Attorney General Orville B. Fitch II, 33 Capitol Street, Concord, New Hampshire 03301, Phone: (603) 271-1238.

e) The submitting authority is New Hampshire Attorney General, Kelly A. Ayotte for the State of New Hampshire.

f) Not applicable.

g) The changes for which pre-clearance is sought were made by a decision of the Secretary of State pursuant to the requirements of the Help America Vote Act and RSA 5:6-d. RSA 5:6-d has previously been precleared.

h) The Secretary of State established an advisory committee with members representing all interest groups related to elections including members of the disabilities community. Members of this group participated in both the development of the RFP and the evaluation the proposals submitted for a voting system to assist voters with disabilities. The Secretary of State then selected the telephone fax-back ballot marking system.

i) Adoption. The telephone fax-back central system is currently in place. Acquisition of telephones, establishment of telephone lines at those polling places that do not already have phone lines, and acquisition of fax machines is ongoing.

j) Effective: As of January 1, 2006, the telephone fax-back system is available for any election held in the State. Actual use in a federal election will not occur until the September 2006 primary, unless a special election becomes necessary before that date.

k) The changes have not been enforced.

l) The changes affect the entire State of New Hampshire.

m) The purpose for the changes are as follows:

1. To comply with the Help America Vote Act of 2002.

2. To provide voters with disabilities with technology that will assist them in privately and independently marking their ballots.

n) These changes do not negatively target any protected class under Section 5 of the Voting Rights Act of 1965. 42 U.S.C. § 1973 (c). They are expected to have neutral impact and do not meet the test of retrogression defined in *Reno v. Bossier Parish Sch. Bd*, 520 U.S. 471, 478 (1997). "(T)he ability of minority groups ... to elect their choices to office" will not be diminished. *Beer v. U.S.*, 425 U.S. 130, 141 (1976).

o) None known.

p) The prior practice predates the requirement for preclearance.

q) Not applicable as this is not a redistricting plan.

r) Exhibit Telephone – Fax-Back B is a copy of a Press Release of this submission, its availability, and inviting comment to federal Department of Justice.

I expect the foregoing information is sufficient to enable the United States Attorney General to make the required determination pursuant to Section 5 of the Voting Rights Act. If further information is required or would be helpful, please contact me.

Very truly yours,

Orville B. Fitch II
Senior Assistant Attorney General
Civil Bureau
(603) 271-1238
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1 SYSTEM OVERVIEW

Table of Contents

Abstract

This document provides an overview of the system. It identifies the functional and physical components of the system, how the components are structured, and the interfaces between them.

1.1 SYSTEM DESCRIPTION

The IVS Ballot Marking System (BMS) is a paper ballot marking system where voters use a polling site telephone to choose candidates or to answer ballot questions. The resulting ballots are printed at a secure central location or via fax at the polling site, and are subsequently counted according to the locally established procedure for generating ballots for optical scanning.

1.1.1 FUNCTIONAL COMPONENTS

Describe the primary components of the system.

1.1.1.1 POLLING-SITE TELEPHONE

The physical interface between the voter (and poll worker) and the BMS is a standard, touch-tone telephone located in the polling site. In the case where ballots are printed via fax, this phone is connected to the fax machine that will print the ballots.

1.1.1.2 BALLOT PRINTING DEVICES

The Printer And Scanner Station (PASS) is part of the standard (non-fax) BMS configuration, and is responsible for reading the selections from printer-marked ballots, and coordinating the playback of those selections to the voter for confirmation (since the voter cannot verify the remotely printed ballot). The PASS is not used in the optional configuration for ballots faxed to the polling site.

An optional configuration of the BMS prints out the ballots at the polling site via fax. As soon as the voter completes a ballot and hangs up the phone, the system calls that number back (using caller ID information), and prints the ballot to the fax machine connected to the calling phone.

1.1.1.3 EMS/TVS SERVER NETWORK

Within the BMS, the Election Management Server (EMS) is responsible for all ballot preparation and management of the system during an election. The EMS maintains the "election database" that determines the candidates and ballot questions, and monitors the status of the entire system.

The telephone system that communicates with the voter and poll worker is called the Telephone Voting Server (TVS), and is located in a central location. This system recognizes touch-tone key

presses by the voter or poll worker, and responds with voice prompts and audio presentation of the names of candidates, or of ballot questions and answers.

1.1.2 OPERATIONAL ENVIRONMENT

Describe the environment in which the system operates.

1.1.2.1 POLLING SITE

At the polling site, the voter interacts with the BMS via a telephone, located within a private area, typically shielded with a curtain in the same manner as traditional voting systems. Upon validating the voter's identity, the poll worker must initiate the voting session, and then allows the voter to complete the session. If the faxed-ballot option is used, the output of the fax machine must be protected from inadvertent view, in a manner similar to the way hand-marked ballots are protected.

1.1.2.2 CENTRAL OFFICE

The BMS (EMS, TVS, and PASS) shall be located in a central office, under the jurisdiction of local election officials. Within the central office, election officials are responsible for the entry and validation of the election data into the EMS, and for ensuring the physical security of these systems (i.e. restricting and monitoring access to the location). Without adequate physical security, the integrity of the system may be open to question.

Each PC-based BMS component (the EMS, TVS, and PASS) is password-protected from unauthorized access, and connects to a Local Area Network (LAN). As with the physical security of the system, it is important to provide networking security to PC-based systems, and a completely private LAN (highly recommended) provides maximum protection against unauthorized access.

Since the BMS components are electrical/electronic devices, measures must be taken to ensure adequate AC power, preferably via Uninterruptible Power Supply (UPS). Additionally, the environmental conditions where the BMS is located must be appropriate for such systems.

Lastly, the BMS interconnects via analog or digital phone lines to the Public Switched Telephone Network (PSTN). These connections should be located as close to the BMS as is practical.

1.1.3 THEORY OF OPERATION

Describe the major operating modes of the system and the theory of operation within each mode.

1.1.3.1 CONFIGURATION OPERATION

Clerical staff, under the direction and supervision of election officials, enters the following data to build an election:

- Government Level definitions
- Party definitions
- Precinct definitions
- District definitions
- Voting instruction definitions
- Response to Question definitions
- Contest assignments
- Candidate assignments

From this data, the system creates scripts (text) for the audio that will be played over the telephone for the voter.

1.1.3.2 VOTING OPERATION

The voter uses the keys of a touch-tone keypad to navigate through ballot options for an election, and to choose between candidates and ballot question choices, presented verbally over the phone. The audio of voter's selections are then played back for them by the system for confirmation. An optional fax-print option produces the resulting paper ballot at the polling site instead of in the central office.

1.1.4 FUNCTIONAL AND PHYSICAL INTERFACES BETWEEN SUBSYSTEMS AND COMPONENTS

This section describes the physical and functional interfaces of the Ballot Marking System functional components. To review, these components are: The Polling-Site Telephone; the Ballot Printing Devices; and the EMS/TVS Server Network.

1.1.4.1 PHYSICAL INTERFACES

The physical interface to the Polling-Site Telephone is the Public Switched Telephone Network (PSTN). The telephone must be able to dial a specific number at the central office (typically a toll-free #), and the polling-site telephone must also be callable from the central office (for automatic call-back).

The physical interface to the Ballot Printing Devices is either a TCP/IP, Ethernet-based network connection (for centrally printed ballots) or the PSTN (for a fax machine located at the polling site).

The physical interface to the EMS/TVS Server Network is a combination of Ethernet-based network connections (TCP/IP), USB serial ports, *and* the PSTN. The Ethernet-based network connects the EMS, TVS, and PASS (if present) components; the scanners connect to each of

the TVS components via USB serial ports; and the PSTN connects to the TVS components, either through analog or digital telephone lines.

1.1.4.2 FUNCTIONAL INTERFACES

There are three functional subsystems within the Ballot Marking System: The telephone subsystem, the configuration subsystem, and the ballot-printing subsystem. The interfaces between these subsystems are:

The telephone subsystem and the configuration subsystem do not interact directly, but rather indirectly, through the audio files that present the election options to the voter. These files are prepared by the configuration subsystem, but are used (at runtime) by the telephone subsystem.

The configuration subsystem and the ballot- printing subsystem interact directly, but only at runtime (during an election or practice session). These systems interface via TCP/IP socket connections through a private Ethernet network.

The telephone subsystem and the ballot- printing subsystem also interact directly, but again, only at runtime (during an election or practice session). These systems interface via TCP/IP socket connections through a private Ethernet network.

1.1.5 COMMERCIAL OFF-THE SHELF (COTS) COMPONENTS

The following COTS hardware and software products and communication services are used in the Ballot Marking System.

1.1.5.1 HARDWARE

All of the hardware utilized in BMS is standard un-modified commercial-off-the-shelf (COTS) equipment.

The models identified below meet or exceed the minimal requirements listed. Functionally equivalent or superior models will be substituted as the PC hardware market evolves.

- Personal Computers: For standard TVS/PASS: 1.0 GHz. Pentium IV (or equivalent) PC, 0.5 Gb. Ram, 70 Mb. disk, monitor, keyboard, mouse - Dell Dimension 4700. For EMS: 1.0 GHz. Pentium IV (or equivalent) PC, 0.5 Gb. Ram, 70 Mb. RAID 1 disk, monitor, keyboard, mouse – Dell Poweredge 800.

- Telephony Cards: For 4-line analog interface – Intel/Dialogic D4PCI; For 24-line T1 interface – Intel/Dialogic D/240JCT-T1

- Network Printers: Laser printer, duplex printing, 2400x600 dpi resolution, LAN interface – Brother HL-5170DN

- 2D Barcode Scanners: PDF417 USB compatible scanner - HHP 4600SF051P

- Network Switches: 100baseT Ethernet – Dell PowerConnect 2016

- Fax (optional): Plain Paper Laser Fax - Panasonic KX-FL511 or equivalent

1.1.5.2 SOFTWARE

- Operating System: For TVS and PASS, the operating system is Microsoft Windows XP Professional, service pack 2. For EMS, the operating system is Microsoft Server 2003, service pack 1.
- OS Support Environment: Microsoft .NET Framework 1.1 SP1, stdole.dll, Interop.Scripting.dll, Interop.SpeechLib.dll
- Database Software: Microsoft MSDE 8.00.761 SP4
- Telephony Driver: Intel Dialogic Telephony Driver: System Software, Release SR5.1.1, version DNA5, Build 30 with service pack 1
- Telephony Service: Inventive Labs CTI32
- Serial Communication: Sax.net Communications, Sax.Communications.Community.DLL
- PDF417 Print Driver: IDAutomationPDF417e.DLL, AxInterop.PDF417Lib.dll, Interop.PDF417Lib.dll
- Scanner Driver: HHP IT4600PDF Imager USB Serial Emulation Driver
- Virus Protection: Norton AntiVirus 10.0
- PDF Document Driver: PEERNET PEERNET.DRV ePDF 6.0

1.1.6 INTERFACES AMONG INTERNAL COMPONENTS

All interfaces listed in 1.1.4.2 are interfaces among internal components.

1.1.7 INTERFACES WITH EXTERNAL SYSTEMS

The only interfaces with external systems are the connection between the TVS and the PSTN (described in section 1.1.4) and the AC power connections.

1.1.8 DIRECTORY LISTINGS

The EMS software is installed with the following directory structure:

```
C:\Program Files\EMS\
        Bin\
                Interop.Scripting.dll
                Interop.SpeechLib.dll
```

libInspire.dll
EMS.exe
stdole.dll

Common Files\
system.DAT
Printer1.DAT

Data\
Blank_log.ldf
Blank_log.mdf
blank_log_sp.DAT
Election_data.ldf
Election_data.mdf
election_data_sp.DAT
Users.ldf
Users.mdf
users_sp.DAT
Vote_count.ldf
Vote_count.mdf
vote_count_sp.DAT

Images\
Arrow_dn.gif
Arrow_lt.gif
Arrow_rt.gif
Arrow_up.gif
Info.gif
Info_icon.gif
Inspire_ems.gif
Inspire_ems.ico
Question.gif
Rotate_icon5.gif

The PASS software is installed on each computer of a PASS unit with the following directory structure:

C:\Windows\System32\
IDAutomationPDF417e.dll

C:\Program Files\PASS\
AxInterop.PDF417Lib.dll
Interop.PDF417Lib.dll
libInspire.dll
ScannerInterface.exe
Sax.Communications.Community.dll
stdole.dll

The TVS software is installed on each computer of a TVS unit with the following directory structure:

C:\Windows\System32\

IDAutomationPDF417e.dll
C:\Program Files\TVS
AxInterop.PDF417Lib.dll
CTI32Engine.dll
CTI32NetLib.dll
Interop.PDF417Lib.dll
libInspire.dll
libPrintBallot.dll
libVoteByPhone.dll
PrinterInterface.exe
stdole.dll

1.2 SYSTEM PERFORMANCE

The BMS is designed to meet the following performance conditions:

1.2.1 PERFORMANCE CHARACTERISTICS

In the pre-Election Day preparation phases of BMS operation, e.g. ballot definition, phone number entry, the EMS interface provides system response typically in real-time, rarely requiring more than a few seconds to execute a flash memory module file transfer.

On Election Day, performance is typically limited by the listening and decision making capacity of the voters. As a result, voting capacity is reflected in system configuration relative to simultaneous voters supported and ballot complexity. These topics are covered in the following sub-sections.

1.2.1.1 TELEPHONE PORTS

A single TVS unit can be configured to support from 4 to 96 telephone lines. Multiple TVS units can coexist within BMS.

1.2.1.2 PRINTERS AND FAX MACHINES

Within the BMS architecture printers are network devices shared amongst TVS/PASS/EMS functional units. In its primary role a printer works in conjunction with a physically adjacent scanner.

A given voting session may take anywhere from 5 to 20 minutes depending upon the complexity of the ballot and the voter's preparation. The printer scanner combination only requires approximately 30 seconds to process a ballot so the number of printer/scanners in an BMS configuration, while scalable, is scaled relative to the number of phone lines expected to be active simultaneously.

If the BMS is configured for the optional Fax capability, there is no central printing of the ballots. Remote printing (assuming that the polling-site telephone line is available for the inbound fax) requires approximately 60-90 seconds for a common, two-page ballot.

1.2.1.3 SCANNERS

See section 1.2.1.2 above.

1.2.1.4 VOLUME

Volume in the context of this BMS document is understood to refer to the maximum number of voting positions per ballot, and the maximum number of ballot styles supported per election.

Unlike a paper ballot with a fixed number of voting positions per area of ballot, BMS presents an audio ballot where the various sound bytes (e.g. candidate name, party affiliation) are stored digitally (not unlike the popular MP3 players) on a disk and assembled as necessary to present a specific audio ballot. Given the storage capacity of the disks utilized in BMS (70 GB) the practical limit to the number of voting positions is the voter's listening tolerance. The BMS is able to present different voting positions for the duration of the Election Day.

The same audio ballot nature of BMS in which a given ballot is "assembled on the fly" for each unique voter, allows a variety of ballot styles which has practical rather than theoretical limits.

1.2.2 QUALITY ATTRIBUTES

The BMS is composed of field-proven COTS hardware and software from leading suppliers. The IVS LLC sourced software has passed rigorous in-house quality assurance tests.

1.2.2.1 RELIABILITY

Since the BMS is primarily a computer system, it has extremely few moving parts (the components of any system most likely to fail). Since the BMS network isolated from external virus, worms, etc., it is inherently protected from these typical sources of computer problems.

1.2.2.2 MAINTAINABILITY

IVS LLC is an Applications Service Provider, and as such offers maintenance of the BMS as part of its service. Essentially, the only customer maintenance activities are replenishment of paper and toner in the printers or fax machines.

1.2.2.3 AVAILABILITY

The combination of reliability and maintainability described above, along with BMS Test mode of operation assure high system availability.

1.2.2.4 USABILITY

Usability for the voter consists of the audio ballot presented to them; its clarity, ease of navigation and choice selection. The ballot is presented in their language of choice. The directions they hear are brief and context related. In addition, they have the opportunity to review and change all selections.

The user interface for the election officials is a standard, menu-driven Windows application, with English language menus and error messages.

1.2.2.5 PORTABILITY

The BMS is composed of desk top, office grade PC hardware. Given its use in election preparation, Practice and Preview voter education, and election day processing, it is not expected that the equipment will be relocated once installed.

1.2.3 OPERATION PROVISIONS

The BMS provides the following operation provisions.

1.2.3.1 SAFETY

Voters, poll workers, and election officials are not exposed to any chemicals, fumes, moving mechanical devices, or high voltages. All of the equipment comprising the BMS is COTS hardware.

1.2.3.2 SECURITY

Access to BMS functionality is protected by both Windows native password barrier and a two-tier password barrier of the BMS which restricts access to a User and an Administrator level.

1.2.3.3 PRIVACY

Voter privacy is achieved by the fact that only the voter hears the ballot and knows what selections they make, and that BMS does not maintain voter identification. Further, the paper ballot is printed in such a fashion that a purposeful and easily observed deviation from normal ballot handling procedures is required to even determine the votes cast.

1.2.3.4 CONTINUITY OF OPERATION

The BMS configurations typically employ redundancy to maintain continuity of operation. Spares of non-redundant components are onsite.

1.2.4 DESIGN REQUIREMENTS

The BMS was designed under the following constraints, standards, and compatibility requirements.

1.2.4.1 DESIGN CONSTRAINTS

a. The system must enable the visually-impaired voters to make selections independently (i.e. without assistance).

b. The system must print the choices made by the voter on paper in both human-readable and machine-readable formats.

c. The system must enable the voters to audibly verify their choices on their printed ballots.

d. The voted ballots must be printed on paper that is durable to meet the 22 month storage requirement and must be chosen to keep printing cost as low as possible.

e. The software module performing ballot printing must be different from the module performing ballot scanning (scanning is used for vote verification/confirmation).

f. The system must use only widely-available COTS hardware.

g. The system must not require special hardware other than a telephone and/or fax machine at the polling sites.

h. The system must not make use of the internet or connect to any other data network.

i. The system must receive no other inputs from any external system other than DTMF tones on telephone lines terminating on telephony equipment via the PSTN.

1.2.4.2 APPLICABLE STANDARDS

FEC 2002 VSS provided the standards to which this product was designed.

1.2.4.3 COMPATIBILITY

The BMS is compatible with the PSTN.

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KELLY A. AYOTTE
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DEPUTY ATTORNEY GENERAL

News Release

RELEASED BY: Attorney General Kelly A. Ayotte

SUBJECT: Voting Rights Act – Submission of a request for preclearance of changes to New Hampshire Voting laws and procedures

DATE: June 10, 2005

RELEASE TIME: Immediate

Attorney General Kelly A. Ayotte announces the submission of requests for preclearance of changes made to the election laws in New Hampshire to the Federal Department of Justice. Preclearance submissions will address changes made to New Hampshire's election laws since jurisdictions in the State became subject to preclearance.

Ten New Hampshire towns are subject to section 5 of the federal Voting Rights Act. Changes to New Hampshire election laws that affect any of these ten towns must be submitted for review by either the Federal Department of Justice or the Federal District Court for Washington D.C. The federal Department of Justice will review the changes to New Hampshire's election laws to ensure that the changes do not have the effect of denying or abridging the right to vote on account of race or color, or membership in a language minority group. Changes to New Hampshire redistricting statutes have been submitted to, and approved by, the U.S. Justice Department since the 1980 census. Federal regulations require that the public be notified that the State has filed a request for preclearance and that the submission be available for public inspection.

Copies of each submission by the Attorney General for the State of New Hampshire are available at the office of the Attorney General at 33 Capitol Street, Concord New Hampshire, 03301. Each document will also be made available at the Attorney General's Office web site at:

http://www.doj.nh.gov/elections/

Attorney General Ayotte and the federal Department of Justice invite persons interested in this submission to submit comments and information, in writing or by telephone, to the Voting Section of the Federal Department of Justice, Civil Rights Division, at the earliest possible date to ensure that they may be considered during the preclearance review time period. Telephone 1-800-253-3931 or (202) 307-2385 or write Chief, Voting Section, Civil Rights Division, Room 7354 – NWB, Department of Justice, 950 Pennsylvania Ave., NW, Washington, DC 20530. The envelope and first page should be marked "Comment under section 5." Additional information on the Voting Rights Act and the preclearance process can be obtained at the web site of the Federal Department of Justice at:

http://www.usdoj.gov/crt/voting/index.htm

The New Hampshire Attorney General's Office Voting section can be contacted at:

http://www.doj.nh.gov/elections/
New Hampshire Toll Free 1-866-8868-3703
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